

Accuphase

CLASS A STEREO POWER AMPLIFIER

A-45

- Pure Class A operation delivers quality power: 45 watts \times 2 into 8 ohms
- Power MOS-FET output stage features 6-parallel push-pull configuration
- Instrumentation amplifier principle ● Further improved MCS+ circuit topology ● Current feedback combines stable operation with outstanding sound ● Bridged mode allows upgrading to true monophonic amplifier ● Large high-efficiency toroidal transformer rated for 600 VA ● 4-step gain control





Pure Class A power amplifier uses power MOS-FET devices to deliver 45 watts per channel (8 ohms) – Fully balanced signal paths as found in high-quality instrumentation amplifiers. Further refined MCS+ topology and current feedback result in superb sound quality and excellent ratings for S/N ratio, THD, and other parameters. Strong power supply and power MOS-FET devices in six-parallel push-pull configuration sustain an amazing 360 watts per channel into ultra-low impedance 1-ohm loads (with music signals).

Pure Class A power amplifiers from Accuphase have long been blending the purity of class A operation with the superior performance of power MOS-FETs. Acclaimed by audiophiles the world over, these products reflect a level of technical know-how that is second to none. Completing the A series lineup, the A-45 is ideal for systems that demand not quite the high power levels of the A-60 but require more power than the A-30 provides. The A-45 of course also demonstrates the same unwavering dedication to sound quality and outstanding design policy which are the hallmark of Accuphase. This pure class A stereo power amplifier with its distinctive external heat sinks is built for the true enjoyment of music.

The so-called instrumentation amplifier principle is used throughout. The signal handling stages feature further improved MCS+ topology and the renowned current feedback approach. This results in electrical characteristics that surpass even the demanding standards set by its predecessors. Employing only highest grade materials and strictly selected parts, the A-45 realizes the two most important goals of an amplifier: very low output impedance and constant drive voltage.

The output stage features power MOS-FETs renowned for their excellent sound and superior reliability. For each channel, six of these devices are arranged in a parallel push-pull arrangement. Because MOS-FETs have negative thermal characteristics, there is no danger of thermal "runaway" as exists with bipolar transistors. Operation remains totally stable even when the amplifier is running hot. Driving these devices in pure class A assures high-definition sound that brings out the finest nuances in the music.

The heavy-duty power supply features a massive power transformer rated for a maximum of 600 VA, plus two smoothing capacitors of 47,000 μF each. This easily sustains output levels of as much as 360 watts per channel into 1 ohm (with music signals). If even higher power is required, bridged mode turns the A-45 into a high-grade monophonic power amplifier.

■ **Power modules with 6-parallel push-pull arrangement of power MOS-FETs deliver 360 watts per channel into 1 ohm (music signals only), 180 watts into 2 ohms, 90 watts into 4 ohms, or 45 watts into 8 ohms.**

■ **Amplified dimensioned power supply with high-efficiency toroidal transformer and large filtering capacity.**

The high-efficiency toroidal transformer is rated for 600 VA, and the two extra-large 47,000 μF aluminum electrolytic capacitors were selected for best sonic performance.

■ **Bridged mode allows upgrading to monophonic amplifier with 720 watts into 2 ohms (music signals only), 360 watts into 4 ohms, or 180 watts into 8 ohms.**

Bridged connection increases the output by a factor of 4, creating dramatic power reserves in a monophonic configuration.

■ **Four gain control settings minimize residual noise.**

The gain control switches gain in the first stage of the instrumentation amplifier. Four settings are available (MAX, -3 dB, -6 dB, -12 dB).

■ **Fully balanced input stage shuts out external noise interference.**

■ **Mode selector for easy switching between dual mono/stereo/bridged operation.**

■ **PCB copper foil and all major signal path components are gold-plated.**

■ **Large analog power meters with off switch and sensitivity selector.**

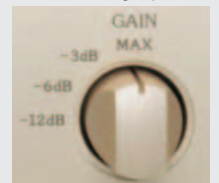
■ **Oversize speaker terminals accept also Y lugs.**



Toroidal power transformer



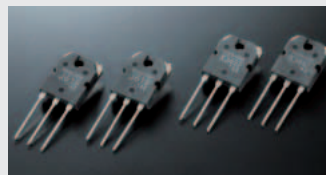
Filtering capacitors



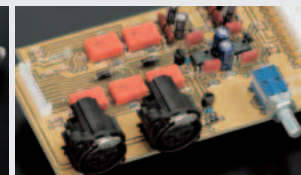
Gain selector



Meter and input buttons



Power MOS-FETs



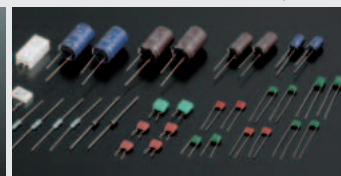
Balanced input connectors



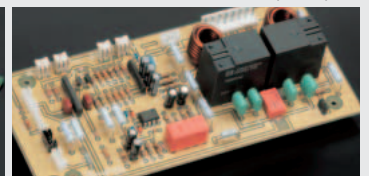
Gold-plated parts



Large speaker terminals



Parts selected for sound quality and reliability



Assembly with meter and protection circuitry

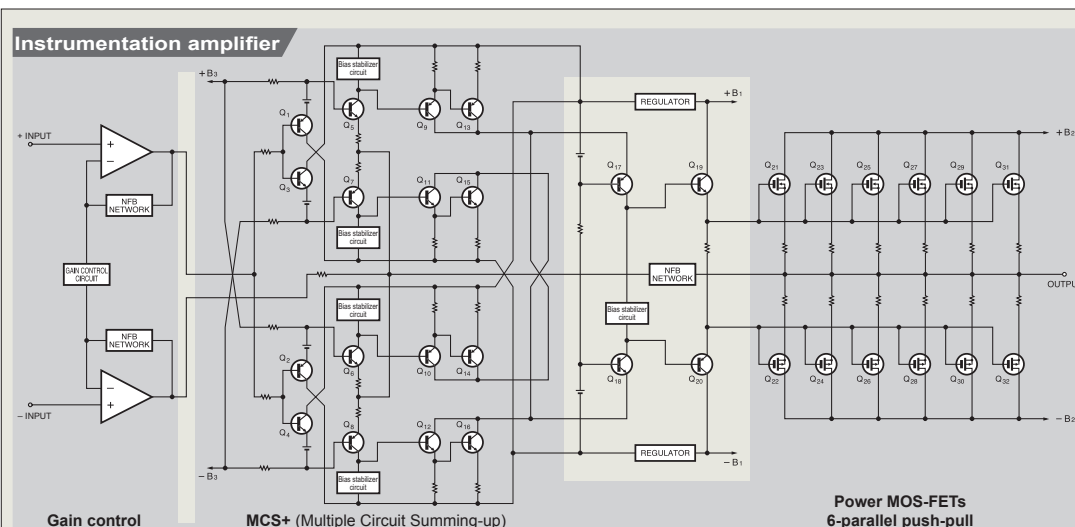
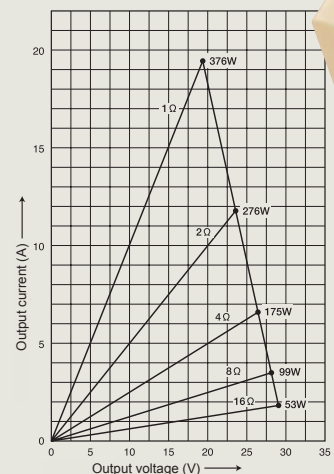


Fig. 1 Circuit diagram of amplifier section (one channel)

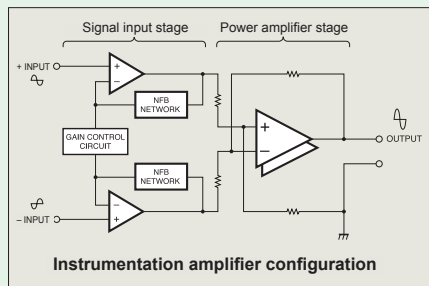


★ 1-ohm operation possible with music signals only
Fig. 2 Load impedance vs. output power (output voltage/output current)

Instrumentation amplifier and further refined MCS+ topology

Instrumentation amp configuration allows fully balanced signal paths

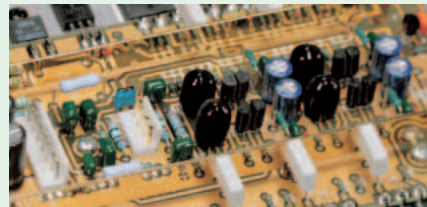
The newly adopted "instrumentation amplifier" principle ensures that all signal paths from the inputs to the power amp stage are fully balanced. This results in excellent CMRR (common



mode rejection ratio) and minimal distortion. Another significant advantage is that external noise and other external influences are virtually shut out. The result is a drastic improvement in operation stability and reliability.

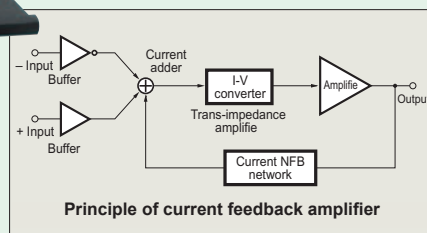
Further refined MCS+ topology for even lower noise

Accuphase's original MCS (Multiple Circuit Summing) principle uses a number of identical circuits connected in parallel to achieve superior performance characteristics. MCS+ is a further refined version of this approach. By extending parallel operation to the class-A drive stage of the current/voltage converter, the noise floor has been lowered further.



Current feedback principle assures excellent phase characteristics in high range

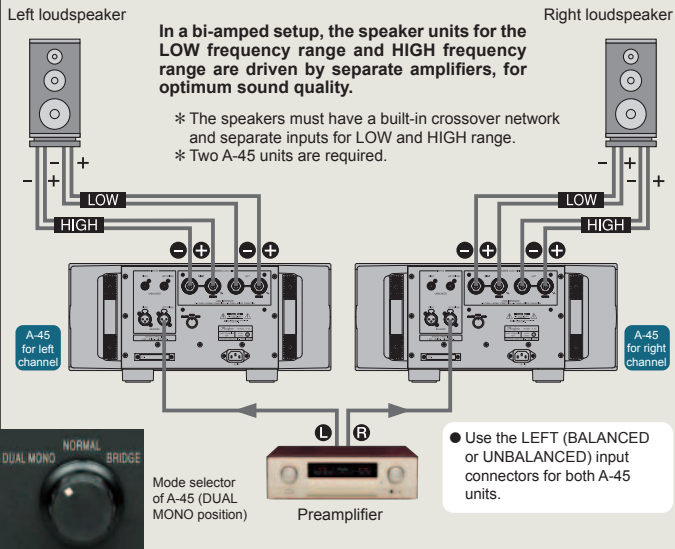
As shown in the illustration, the A-45 uses the output signal current rather than voltage for feedback. Since the impedance at the current feedback point is very low, there is almost no phase shift. A minimal amount of NFB therefore results in maximum improvement of circuit parameters.



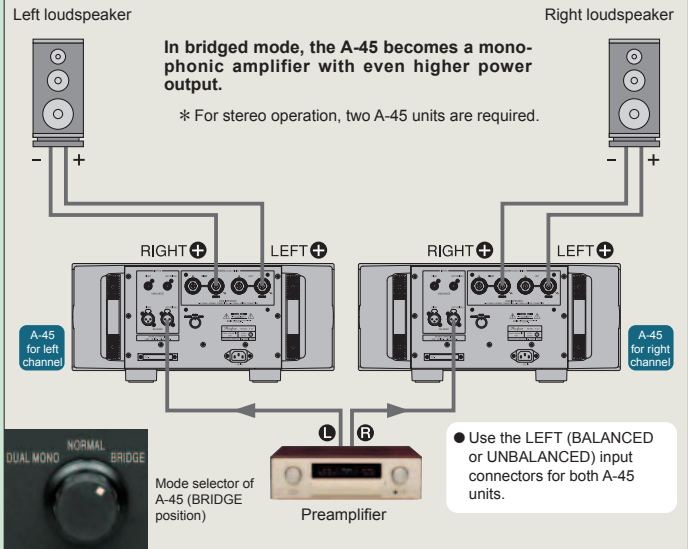
Power amplifier assembly
Power amplifier assembly with six parallel push-pull power MOS-FET pairs per channel mounted directly to large heat sink, MCS+ circuitry, and current feedback amplifier.



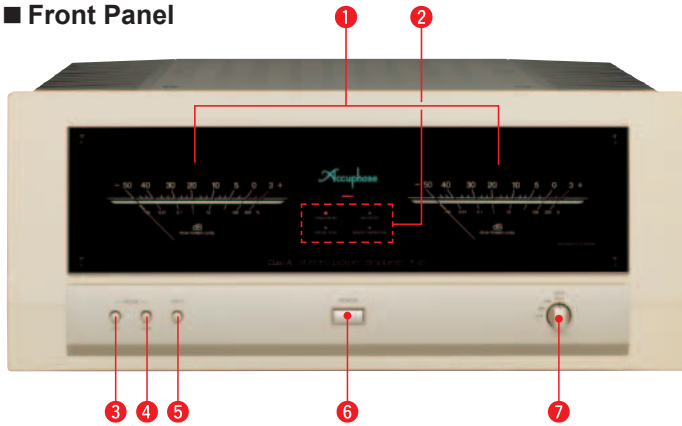
Connection example for bi-amping setup



Connection example for bridged setup



■ Front Panel



■ Rear Panel



- | | |
|---|--|
| <p>① Left/right channel output power meters (dB and % scale)</p> <p>② Function indicators
METER -20 dB, UNBALANCED, BALANCED, BRIDGE</p> <p>③ Meter operation/illumination button ON OFF</p> <p>④ Meter sensitivity selector button (-20 dB)</p> <p>⑤ Input selector button UNBALANCED BALANCED</p> <p>⑥ Power switch</p> <p>⑦ Gain selector
MAX -3 dB -6 dB -12 dB</p> | <p>⑧ Unbalanced inputs</p> <p>⑨ Balanced inputs
① Ground
② Inverted (-)
③ Non-inverted (+)</p> <p>⑩ Left/right channel speaker output terminals</p> <p>⑪ Mode selector
DUAL MONO NORMAL BRIDGE</p> <p>⑫ AC power supply connector*</p> |
|---|--|

Remarks

- * This product is available in versions for 120/230 V AC. Make sure that the voltage shown on the rear panel matches the AC line voltage in your area.
- * The shape of the AC inlet and plug of the supplied power cord depends on the voltage rating and destination country.

■ Supplied accessory • AC power cord

GUARANTEED SPECIFICATIONS

[Guaranteed specifications are measured according to EIA standard RS-490.]

- **Continuous Average Output Power (20–20,000 Hz)**

Stereo operation	360 watts per channel into 1 ohm(*)
(both channels driven)	180 watts per channel into 2 ohms
	90 watts per channel into 4 ohms
	45 watts per channel into 8 ohms
Monophonic operation	720 watts into 2 ohms(*)
(bridged connection)	360 watts into 4 ohms
	180 watts into 8 ohms

Note: Load ratings marked (*) apply only to operation with music signals.

- **Total Harmonic Distortion**

Stereo operation (both channels driven)	0.05% with 2 ohm load
	0.03% with 4 to 16 ohm load
Monophonic operation (bridged connection)	0.03% with 4 to 16 ohm load
- **Intermodulation Distortion** 0.004%
- **Frequency Response**

At rated output:	20 ~ 20,000 Hz +0, -0.2 dB
At 1 watt output:	0.5 ~ 160,000 Hz +0, -3.0 dB
- **Gain** 28.0 dB (with GAIN selector at MAX) (in stereo and monophonic operation)
- **Gain Selection** MAX, -3 dB, -6 dB, -12 dB
- **Output Load impedance**

Stereo operation:	2 to 16 ohms
Monophonic operation:	4 to 16 ohms

[With music signals only, 1-ohm loads are permissible for stereo operation and 2-ohm loads for monophonic operation.]

- **Damping Factor** 200
- **Input Sensitivity (with 8-ohm load, GAIN selector in MAX position)**

Stereo operation:	0.76 V for rated output
	0.11 V for 1 watt output
Monophonic operation:	1.51 V for rated output
	0.11 V for 1 watt output
- **Input Impedance**

Balanced:	40 kilohms
Unbalanced:	20 kilohms
- **Signal-to-Noise Ratio (A-weighted, input shorted)**

115 dB (GAIN selector in MAX position)
120 dB (GAIN selector in -12 dB position)
At rated output
- **Output Level Meters** Logarithmic scale, with defeat switch, and sensitivity switch (-20 dB) -50 dB to +3 dB (indication in dB and %)
- **Power Requirements** AC 120 V/230 V, 50/60 Hz (Voltage as indicated on rear panel)
- **Power Consumption**

235 watts idle
430 watts in accordance with IEC 60065
- **Maximum Dimensions**

Width	465 mm (18-5/16")
Height	211 mm (8-5/16")
Depth	464 mm (18-1/4")
- **Mass**

30.9 kg (68.1 lbs) net
38.0 kg (83.8 lbs) in shipping carton

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ACCUPHASE LABORATORY, INC.